



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/003,982 | 10/30/2001 | Robert Varney | | 6027 |

7590 03/22/2004

Legal Department
Teradyne, Inc.
321 Harrison Avenue
Boston, MA 02118

EXAMINER

DIMYAN, MAGID Y

ART UNIT PAPER NUMBER

2825

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,982

Applicant(s)

VARNEY, ROBERT

Examiner

Magid Y Dimyan

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-27, 32-35 and 37-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-27, 32-35 and 37-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement

1. Receipt is acknowledged of the Amendment to the Claims, as well as the Remarks, filed 19 December 2003. It is also acknowledged that the Applicant has cancelled claims 28-31, 36 and 45 – 54.

Claim Objections

2. Claim 24 is objected to because of the following informalities: line 24, recites an ATPG/scan fail translator, however it has not been previously mentioned or described, nor has it been referred to in the Specification. Appropriate action is required.

3. Claim 39, line 3, delete “and”; line 4, delete “comprises” and insert --comprising--. Appropriate action is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2825

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 24 – 27, 32 – 35 and 37 – 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,185,707 to Smith et al (hereinafter, Smith) in view of U.S. Patent No. 6,205,407 to Testa et al (hereinafter, Testa).

6. Referring to claims 24 and 35, Smith discloses a DFT result diagnosis method and system as claimed herein, that includes (a) an ATE data source; (b) an ATPG tool to generate ATPG pattern data; (c) at least one translation module; and (d) means to summarize test result data. See Figs. 11, 12; column 3, lines 1 – 12. The only limitations not recited by Smith are the use of a Graphical User Interface (GUI) or other graphical means of displaying the results. However, Testa teaches a system and method for generating test code for testing an IC on an ATE platform that includes translating scan and pattern data into test code that make use of a GUI in his invention (see Abstract; Summary of the Invention, column 2, lines 25 – 56). As per claim 25, see Smith, Fig. 12; column 1, lines 11 – 43, which cite using a semiconductor tester. As per claims 26 and 27, see Figs. 11 and 12, which show the ATE data source, as well as the translation modules and mapping generator claimed herein. As for claims 32 – 34, as mentioned above Smith discloses the DFT result diagnosis system that includes a tester, scan diagnosis tool, translation module to convert data between domains, and means for storing test result data. Furthermore, Smith cites how the X, Y coordinates of the failed

chains are obtained (see Abstract; column 3, lines 35 – 62). Again, as mentioned above, Testa recites the use of a GUI in his invention. As for claims 37 and 38, see above, as well as the Abstract, which teach how the X-Y coordinates of a failed net (i.e., a failed scan chain) can be identified and displayed, so that they can be easily diagnosed, as claimed. Referring to claims 39 – 43, see also Fig. 12; and the Abstract, which recite the steps of device testing as claimed. As per claim 44, see column 4, lines 61 – 65 and Fig. 3, which show how scan failures are displayed, as claimed.

7. Since GUI's and other graphics would greatly facilitate and enhance the scan diagnosis process, and are now well known in the art of IC design and development, it would therefore be obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Smith and Testa to obtain the same inventions as claimed herein.

Response to Amendment

8. In response to the Remarks by the Applicant referred to above in the Acknowledgement, the Smith disclosure relates to DFT techniques (column 1, lines 9 – 21) as well as ATE. The Examiner has not cited Testa for these limitations, as argued by the Applicant. Smith performs a diagnosis step wherein a list of failed scan chains is displayed (column 4, lines 35 – 42) on a display device (see also Fig. 10), which necessarily includes a graphical user interface (see Testa, Abstract). Smith does indeed

correlate these test failures to physical defects for bitmapping purposes, but this cannot discount the fact that Smith also suggests Applicant's claim language of identifying the locations of failed scan chain data.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

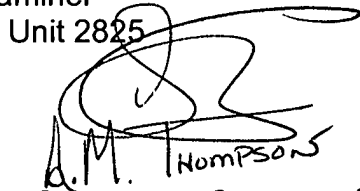
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magid Y Dimyan whose telephone number is (571) 272-1889. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Magid Y Dimyan
Examiner
Art Unit 2825

myd


A.M. Thompson
PRIMARY EXAMINER
TECHNOLOGY CENTER 2800